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Claims

1. Method for establishing a correlation between a first state of a piezoelectric component (1, 20) having a piezoceramic element and a second state of the component, the second state of the component being generated from the first state of the component by polarization of the piezoceramic element of the component, with the following method steps:
 - a) provision of a first group of components each with the first state,
 - b) determination of at least one specific characteristic of each of the components of the first group,
 - c) polarization of the piezoceramic element of the components of the first group, with a corresponding component of a second group resulting from each of the components of the first group and having the second state,
 - d) determination of at least one specific characteristic of each of the components of the second group and
 - e) establishment of the correlation by comparing the specific characteristic of each of the components of the first group and the specific characteristic of the corresponding component of the second group.
2. Method according to claim 1, in which a number of specific characteristics of the component with the first state are determined and used to establish the correlation with the specific characteristic of the component with the second state.

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3. Method according to claim 1 or 2, in which the specific characteristic of the component with the first state is selected from the group loss angle ($\tan \delta$) of the piezoelectric layer, insulation resistance of the piezoelectric layer, density of the piezoelectric layer, relative permittivity of the piezoelectric layer, ferroelastic behavior of the component, module of elasticity (E module) of the component, longitudinal sound velocity of the component and/or temperature sensitivity of the capacity of the component.

4. Method according to one of claims 1 to 3, in which a lead zirconate titanate is used as the piezoceramic element.

5. Method according to claim 4, in which a ratio of a rhombohedral part by volume with a rhombohedral phase and a tetragonal part by volume with a tetragonal phase is used as the specific characteristic of the component with the first state.

6. Method according to one of claims 1 to 4, in which components of the first group are used, the first state of which is characterized by partial polarization of the piezoceramic element in each instance.

7. Method according to claim 6, in which for the purposes of partial polarization the piezoceramic element of the components is polarized without pressure at room temperature.

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8. Method according to claim 6 or 7, in which for the purposes of partial polarization the piezoceramic element of the components is polarized at a poling temperature that is higher than room temperature.

9. Method according to one of claims 6 to 8, in which for the purposes of partial polarization a mechanical compressive stress is exerted on the piezoceramic element of the components.

10. Method according to one of claims 6 to 9, in which for the purposes of partial polarization the component is heated to above the Curie temperature of the piezoceramic element and a polarization field with a low field strength of less than 100 V/mm is applied as the component cools to room temperature.

11. Method according to one of claims 1 to 10, in which a piezoelectric component is used, which has at least one piezoelement (10) with at least two electrode layers (11, 12) arranged one on top of the other and at least one piezoelectric layer (13), containing the piezoceramic element, arranged between the electrode layers.

12. Method according to claim 11, in which a multilayer actuator is used as the piezoelectric component, in which a number of piezoelements (10) are arranged to form a stacked actuator body (20).

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13. Use of the correlation to predict the specific characteristic of a specific piezoelectric component with the second state from the determined specific characteristic of the specific component with the first state.

14. Use according to claim 13, with the quality of a component being judged based on the prediction.

15. Use of the correlation to configure a polarization method, with which the piezoceramic element of the component can be polarized, such that a component with a specific second state is obtained.